

November 26, 2007

Ms. Amy M. Bennett
Standards Coordinator
South Carolina Department of
Health and Environmental Control-Bureau of Water
2600 Bull Street
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Subject: SC Water Quality Standards Triennial Review Process
Proposed Amendments to R.61-68
Duke Energy Carolinas, LLC Comments

Duke Energy Carolinas, LLC (“Duke Energy”) appreciates the opportunity to participate in the Water Quality Standards triennial review process and to provide comments on specific water quality standards and other matters addressed in R. 61-68, Water Classifications and Standards. Duke Energy’s specific comments are as follows:

I. ADOPTION OF EPA WATER QUALITY CRITERIA

During previous correspondence, Duke Energy and other stakeholders requested that the Department review any new or revised EPA criteria to determine their applicability to South Carolina rather than simply adopting them en mass. This review should encompass all the EPA recommended water quality criteria for the protection of human health posted in the Federal Register on December 31, 2003. As demonstrated by the Department’s modification of the arsenic criteria, there are many variables and assumptions that the EPA uses to calculate recommended water quality criteria, and many of those factors may not be applicable to South Carolina or are overly conservative. Duke Energy believes that certain standards are currently promulgated at levels more stringent than necessary to adequately protect human health and the indigenous biological community of the state’s surface waters. Specifically, as stated below, Duke Energy has objection to the direct adoption of the thallium standard, and requests that the Department perform a similar analysis of the other federal criteria prior to incorporation into state regulation.

II. REVISION OF THE PROPOSED SOUTH CAROLINA WATER QUALITY STANDARD FOR THALLIUM

With regard to the human health-based water quality standards for thallium in other EPA Region IV states, most are either the same as those currently in effect in South Carolina (W/O – 1.7 µg/L and Org. Only – 6.3 µg/L) or do not exist. SC DHEC is proposing to adopt the EPA recommended values of 0.24 µg/L (W/O) and 0.47 µg/L (Org. Only) which were posted in the Federal Register on December 31, 2003.

At present, there is a lack of rigorous and specific scientific study on the water effects of thallium. After conducting a thorough search of the available research and investigating the derivation of the proposed standards, Duke Energy has concluded that the application of these criteria to South Carolina waters is not consistent with the conditions used to derive them. Several factors are utilized in the development of water quality criteria, and their derivation is based on conservative estimates of the risk to human health. These risk factors include the Reference Dose (RfD), the Relative Source Contribution (RSC), the Fish Ingestion Rate (FIR), the Bioconcentration Factor (BCF), and others. Several of the values used for these factors are overly conservative and one factor that is inappropriate for South Carolina freshwaters is the BCF for thallium.

The BCF used to derive the proposed standards of 0.24 µg/L (W/O) and 0.47 µg/L (Org. Only) is a value of 116 liters/kilogram (L/kg). As detailed in the document titled, “Ambient Water Quality Criteria for Thallium” (EPA 440/5-80-074) and dated October 1980, this value was derived using three species (Atlantic salmon, softshell clam, and blue mussel) with BCFs of 130, 18, and 12 L/kg respectively. A BCF of 34 L/kg was mentioned for bluegill (which are resident in South Carolina), but this species was not used in the 116 L/kg BCF derivation calculation. Of the three species used, only the softshell clam is present in South Carolina. Therefore, rather than use a weighted average (based on the associated ingestion rates) of 116 L/kg, a BCF of 18 L/kg appears to be more appropriate for South Carolina. Additionally, if only the softshell clam BCF is used, a lower fish ingestion rate may be more appropriate. Further review of each factor used to derive the proposed standards for their applicability in South Carolina is warranted.

SC DHEC should not adopt any federally recommended water quality standards without a detailed review of its derivation and applicability to South Carolina surface waters. As recently documented with regard to the human health-based criteria for arsenic, the Department should not adopt generic federal standards without adequate technical review for determining applicability as to whether or not the revised standard would result in a meaningful improvement in human health or the environment in South Carolina. Without this technical review and human health/environmental impact assessment, the Department might adopt overly conservative standards that result in unwarranted economic impacts, placing South Carolina business and industry at a competitive disadvantage compared to other states. Noting also that the SC drinking water standard for thallium is 2 µg/L, Duke Energy requests that SC DHEC review thallium and document the rationale for inclusion as a standard in R.61-68. Therefore, Duke Energy requests that the current thallium water quality standard remain unchanged until more relevant state or regional scientific studies can be performed and properly evaluated.

III. R.61-68 REQUESTED CHANGE

Duke Energy recommends the following change to R.61-68. This change is delineated using **highlighted text** for additional language and ~~strikeout text~~ for removed language.

Section E. 14 (b) (1) should be modified as follows:

If separate numeric criteria are given for organism consumption, water and organism consumption (W/O), and drinking water Maximum Contaminant Levels (MCLs), they shall be applied as appropriate. The most **appropriate** ~~stringent~~ of the criteria shall be applied to protect the existing and classified uses of the Waters of the state.

Duke Energy feels that the most appropriate numeric criteria should be utilized based on site specific conditions, such as water use designation. Use of the numeric criteria in this manner is consistent with E.14 (c) (5).

IV. RESTRICTION OF INSTREAM DILUTION

SC Regulation 61-9, *Water Pollution Control Permits*, contains a requirement that Duke Energy believes should be addressed through R.61-68 and more clearly defined in the associated permitting procedures. Many rivers in South Carolina are listed as impaired water bodies for the consumption of fish tissue due to methyl mercury, even though the instream mercury concentration is not higher than the most restrictive stream standard. Whether the impairment is due to mercury, iron, or another parameter, Duke Energy does not agree, as mentioned in permit rationales, that section 122.44(d)(1)(ii) of R.61-9 is applicable to restrict the use of dilution flow when evaluating the reasonable potential for the discharge to result in an exceedance of the stream standards. With regard to establishing limitations, standards, and other permit conditions, that part of R.61-9 states,

(d) Water quality standards and State requirements: Any requirements in addition to or more stringent than promulgated effluent limitations guidelines or standards under sections 301, 304, 306, 307, and 318, and 405 of CWA necessary to:

(1) Achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.

(ii) When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and non-point sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water.

Due to the cost associated with compliance with unnecessarily stringent NPDES permit limitations, Duke Energy recommends that Sections C.4.(a)(2) and C.4.(b)(2) of R.61-68 be modified as shown by **highlighted text** to clarify that the application of dilution flow should only be restricted when required by an associated TMDL. Since the language in R.61-9 does not specifically restrict dilution flow when deriving water quality-based permit limitations, Duke Energy believes that no modification of that regulation is necessary.

C.4.(a)(2) **Except for impaired water bodies addressed within TMDLs, t**The Department shall consider conditions that are comparable to or more stringent than 7Q10 where appropriate to protect classified and existing uses, such as below dams and in tidal situations. Only those situations where the use of 7Q10 flows are determined to be impracticable, inappropriate, or insufficiently protective of aquatic life uses shall be considered as a situation in which the Department may consider other flow conditions.

C.4.(b)(2) **Except for impaired water bodies addressed within TMDLs, t**The Department shall consider conditions that are comparable to or more stringent than annual average flow, 7Q10, or 30Q5 (if provided by the applicant) where appropriate to protect the classified and existing uses, such as below dams and in tidal situations. Only those situations where the use of annual average flow, or 7Q10, or 30Q5 (if provided by the applicant) are determined to be impracticable, inappropriate, or insufficiently protective of human health uses shall be considered as a situation in which the Department may consider other flow conditions.

V. OTHER COMMENTS

- Duke Energy supports SCDHEC's proposed change to R.61-68 C.10.(a) which provides for the use of mixing zones in source water protection areas.
- Duke Energy supports SC DHEC's decision to use the current arsenic Maximum Contaminant Level (MCL) as the interim value for the protection of human health until more definitive scientific research is evaluated.
- Duke Energy supports the removal of iron and manganese as non-priority pollutants from R.61-68.

Please contact Allen Stowe at (704)382-4309 or jastowe@duke-energy.com should you have any questions regarding these comments.

Respectfully submitted;

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